ABSTRACT

The present invention relates generally to the problem of filtering, decimation or interpolation and frequency conversion in the digital domain, and more particularly to its use in wideband multichannel receiver, channelisation, and transmitter, de-channelisation, structures. The invention combines a stand-alone fast convolution algorithm which is further modified and then combined with additional signal processing. By intelligently splitting the filtering effort between the modified fast convolution algorithm block and an additional signal processing block a synergy is created between the two blocks which provides for decreased costs, reduced delay and a reduction in the size of the Fast Fourier Transforms (FFTs). The resulting advantages are especially useful in any system handling multiple channels simultaneously, but especially where there exist strict requirements on both delay and on input Fast Fourier Transform (FFT) size.